

# wildlife

R E V I E W



## Crayfish

*Small but tasty*



## Deer Creek

*A piece of Paradise*



## Volunteers

*Helping kids*



## Red Fleet

*Still a secret?*

## Whirling disease

We've learned a lot in 15 years.

## Channel cats

They're easy to catch and taste good on the table.



# Wildlife Review

Utah Division of Wildlife Resources

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Large photo at right: Deer Creek Reservoir by Scott Root

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# Summer

2006

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"This year for the first time, your fishing license is good for a full year: that's 365 days of great Utah angling opportunity from the day you buy it."

## DIRECTOR'S MESSAGE

**T**HANK YOU for picking up the Summer 2006 issue of the Wildlife Review. I hope you find the stories in this issue both informative and educational. This time we're focusing on fishing at several reservoirs around the state to give you all the information you need to make your next fishing trip a success.

Sport fishing in Utah has seen many changes in recent years. These changes are aimed at providing greater and more diverse recreational fishing opportunities for the hundreds of thousands of anglers in our state. This summer shows great promise for Utah anglers at popular waters like Deer Creek Reservoir, where stocking of rainbow trout has been dramatically increased, and Red Fleet Reservoir, one of the best-kept bluegill and bass secrets in the Uintah Basin.

This year, for the first time, your fishing license is good for a full year: that's 365 days of great Utah angling opportunity from the day you buy it. In past years, the license was good for the calendar year only.

Our fish hatcheries continue to produce more trout, in spite of the fact that whirling disease has shut down three of them. The new, state-of-the-art Kamas Hatchery is operating at full production, and the Utah legislature this year budgeted \$5 million for the construction of a new hatchery in Midway. That level of support from the Legislature for our sport fishing program is unprecedented and greatly appreciated.

Clearly, the word is out that fishing and related outdoor activities are big business in Utah, bringing millions of dollars into our economy every year — yes, even rivaling the ski industry. Local economies throughout rural Utah benefit directly from retail sales of fishing and outdoor equipment,



as well as from income generated by gasoline sales, food, lodging and other services.

Closer to home, our Community Fishing program is providing quality fishing opportunities for thousands of urban youth, seniors and others along the Wasatch Front. Many of these youngsters are getting an opportunity to go fishing for the first time in their lives within bicycling distance from their homes. Community fishing ponds offer them an enjoyable and healthy alternative to television, video arcades, malls and the dangers of drugs and street gangs. Best of all, it's just plain fun. It's especially important to expose these kids to fishing now, since they represent the future of sport fishing in our state.

I encourage you to buy a fishing license today and enjoy some of the best fishing the Intermountain West has to offer. Take your family fishing and have fun!

**James F. Karpowitz**  
UDWR Director

*Jim Karpowitz*

By CHRIS WILSON  
DWR Fish Pathologist

# Whirling disease

## What we've learned in the last 15 years

SOME NEW and innovative ways to fight whirling disease have been discovered since the disease was found in Utah in 1991.

Before we look at these new possibilities, let's take a step back and examine whirling disease in the state and what we've learned about the disease in the past 15 years.

### Whirling disease in Utah

Whirling disease (*Myxobolus cerebralis*) in Utah was discovered in 1991 in trout at private hatcheries in Wayne and Sevier counties and in the surrounding waters of the Fremont River. Since then, the parasite has spread. It can now be found in many of the low to mid-elevation streams and reservoirs along the Wasatch Front, as well as some waters in outlying areas.

Severe declines in wild rainbow trout in some of the premier fisheries

in Montana and Colorado have led scientists and fisheries biologists to study whirling disease intensively, and they've learned some interesting things.

### Life cycle

The whirling disease parasite undergoes a complex life cycle (see graphic on following page), infecting both salmonid fishes (trout and salmon

only) and the common aquatic worm, *Tubifex tubifex*.

The parasite causes disease in a fish by migrating to the head region, where it destroys cartilage and causes inflammation. Rainbow trout are most susceptible to the disease, while Utah's native cutthroat trout typically show a medium level of susceptibility. Brown trout can become infected, but they rarely show signs of the disease, while lake trout and grayling are largely immune to infection. There is no effective treatment for infected fish.

Humans and other mammals *cannot* be infected with whirling disease, and *infected trout are perfectly safe to eat*.

### Spread of whirling disease

The whirling disease parasite can be spread several ways, and human activity can play a key role. The ways in which whirling disease is spread are included among the following:

- Water provides a perfect way for infected fish, and the parasite itself, to move. Evidence has shown that interdrainage canals and even the underground contamination of springs are some of the major ways the parasite is spread. Dewatering of streams can also kill fish and cause the release of millions of infective spores.

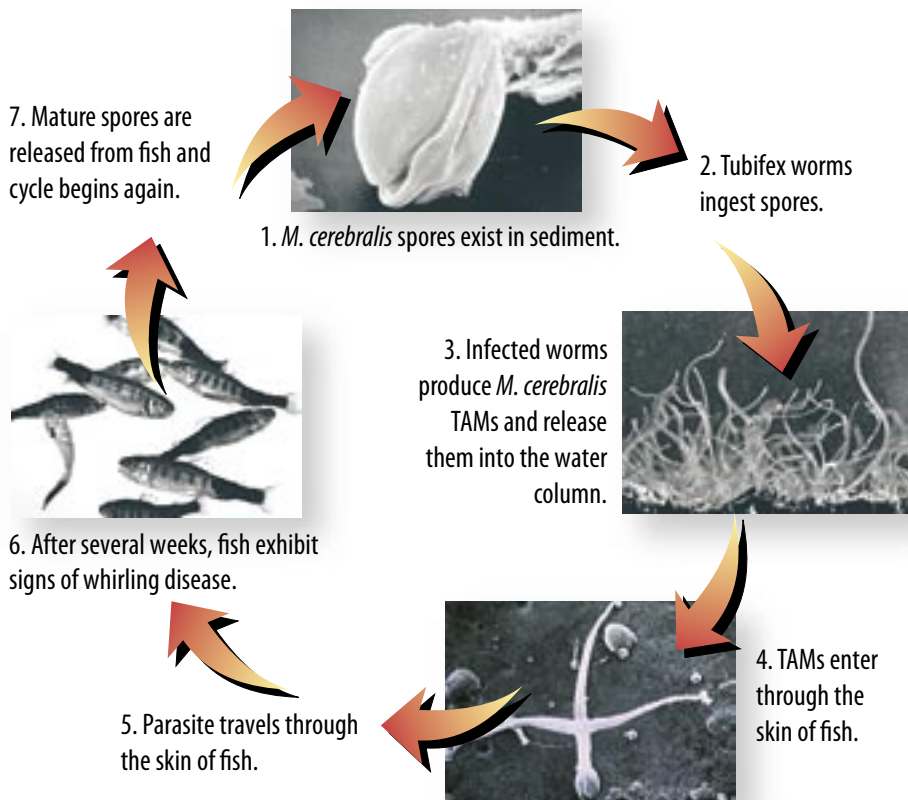


© STEPHEN ATKINSON

These rainbow trout show the clinical symptoms of whirling disease.

## Whirling disease

The life cycle of the organism responsible for whirling disease.



Photos courtesy of (clockwise from top): Whirling Disease Foundation; Maria Markiw, U.S. Geological Survey; Mansour El Matbouli; and the U.S. Geological Survey

- The illegal stocking of fish from contaminated waters, or the innocent but improper disposal of fish heads and skeletons from contaminated waters into waters that are not contaminated, are also common ways the parasite is spread. A single infected fish may contain more than one million spores, so it's extremely important to dispose of fish carcasses properly.
- The transfer of spores through the feces of fish-eating birds has been suspected as a way whirling disease is spread, but this has never been shown to occur outside of the laboratory. Some recent studies have shown that the spores do not survive transfer through the digestive tract of mammals either.
- Wading boots, boats and other fishing gear have been implicated as ways the parasite can be spread, but researchers

consider this much less probable than the other ways the parasite is spread.

However, dirty equipment can spread other aquatic nuisance species, such as New Zealand mudsnails, so it's still very important that anglers clean mud, plants and other debris from their gear after fishing or boating.

### Impact of whirling disease

Contrary to some doomsday reports, the discovery of the whirling disease parasite in a watershed does not necessarily mean fish won't thrive there. While young wild trout may be killed by the disease if sufficiently infected, researchers have noted that infected fish are more likely to grow less, swim less vigorously and be more susceptible to predation or to other diseases. It's often very difficult to separate the effects whirling disease has had on fish from the effects other environ-

mental factors, such as drought, have had on them.

Impacts from whirling disease have varied greatly across the United States, from a 90 percent loss of young rainbow trout in some rivers in Montana to no discernible effect at all at other locations with the disease. There is no way to know in advance what effect the introduction of the parasite may have on a fishery. The best approach is to try and prevent the parasite from being introduced in the first place.

In the majority of Utah streams where the parasite is found, no major declines in fish numbers have been detected, although biologists are quick to point out that a reliable before-and-after profile is rarely available. One reason impacts may be less severe in Utah is the fact that, in contrast to other Western states, few wild rainbow trout populations exist in Utah. Many streams in Utah are populated with brown trout, which are more resistant to whirling disease.

In several Utah waters that biologists have examined in detail, substantial deformities in surviving fish have been noted. Whirling behavior is rarely seen but other clinical signs, such as sloped heads, black tails or crooked spines, are more common. It should also be noted that many other factors can cause fish to show signs that are similar to whirling disease, so examining a fish in a laboratory is the only reliable way to know if a fish really has the disease.

A few waters in Utah have been the subjects of intense study. In the Beaver River in southwestern Utah, populations of wild rainbows have declined since the discovery of whirling disease, while wild (and more resistant) brown trout numbers have actually increased. In Porcupine Reservoir, substantial deformities in spawning kokanee salmon have increased and 100 percent of emerging kokanee fry were shown to be infected within a year of hatching. In the Logan River, Utah State University researchers found that the rate of infection in wild cutthroat trout had increased over a

three-year period and that the number of cutthroats had declined during that same time.

The economic impacts of the disease have been devastating to state and private trout hatcheries. The parasite has been detected at the Midway, Mammoth Creek and Springville state hatcheries, and millions of dollars have been spent to drill new wells, rebuild raceways and install equipment to disinfect water supplies.

There's a positive side to all of this, however, as these investments provided badly needed repairs to the hatcheries that will allow them to produce more fish in the future. In the meantime, the remaining state hatcheries have met the challenge and are providing plenty of fish to meet the needs of Utah's anglers.

### What does the future hold?

Whirling disease cannot be eradicated, and it's here to stay in many of Utah's trout populations. Fisheries biologists are presented with the challenge of managing around the parasite and trying to minimize its further spread and effect on wild cutthroat trout populations in Utah. Anglers and other outdoor recreationists can help slow the spread of the parasite by following a few, simple rules. (See sidebar at right.)

### Some good news?

Recently, research has provided some promising ideas for managing whirling disease. They include the following:

- **Resistant trout:** rainbow trout exported from Colorado to Germany in the late 1800s have been exposed to the parasite for many generations, and they seem to have the same resistance to the disease that brown trout have. Recently, research biologists at the Utah Division of Wildlife Resource's Fisheries Experiment Station imported eggs from these trout and crossed them with wild Montana rainbows. They're evaluating these fish to see if they can be produced at state hatcheries in the future.

- **Water disinfection:** new sand filtration and ultraviolet technologies are being investigated as cost-effective ways to disinfect hatchery water supplies, which would prevent the parasite from entering the hatcheries through the water.
- Genetic strains of tubifex worms, which are resistant to infection by the parasite, have also been discovered recently. Biologists are considering introducing these resistant worms to aquatic systems as a possible way to reduce the infection levels in wild fisheries and maybe even in hatcheries.
- **Holistic Land Health** — researchers at Utah State University are conducting a study to learn whether improvements to the streamside zone along Spawn Creek (a tributary to the Logan River) slows the spread of the disease. Researchers believe the improvement work, which will reduce siltation and cool the water temperature, could slow the spread of the parasite among Bonneville cutthroat trout in the tributary. The researchers are being supported by funds from Utah's Blue Ribbon Fisheries program, Trout Unlimited and other groups. 🐟

**D**ON'T dispose of fish heads, skeletons or entrails in any body of water. Fish parts should be disposed of in the garbage, by deep burying or by total burning.

**D**O clean all equipment such as boats, trailers, waders, boots, float tubes and fins of mud before leaving an area when fishing. Felt-soled boots are difficult to clean and should be avoided. Thoroughly dry equipment in the sun, if possible, before reuse. If you are traveling directly to other waters, clean your equipment with a 10 percent solution of chlorine bleach or use another set of equipment.

**D**ON'T transport live fish between bodies of water. This practice could spread disease and is strictly illegal unless the fish have been completely tested free of disease.

**C**ALL if you observe the signs of whirling disease in fish or observe illegal stocking. Contact your local conservation officer directly or call the poaching hotline at 1-800-662-3337.



CHRIS WILSON

DWR Biologist Roger Mellenthin feeds whirling disease resistant trout.

By **ANDREW CUSHING**  
Community Fisheries Biologist

# Channel catfish

## Easy to catch and tasty on the table

**C**HANNEL CATFISH provide two things many anglers are looking for: they're easy to catch and they taste great on the table.

### Channel catfish in Utah

You'll find channel catfish in many waters in Utah. Waters in the Colorado River drainage, including the Green River and Lake Powell, are great places to try. Other good catfish waters include the Bear River, Willard Bay Reservoir, Utah Lake, the Jordan River and many of the fishing ponds in communities along the Wasatch Front.

Three characteristics make channel catfish easy to identify: they have a deeply forked tail, whiskers surround their mouth and their body has dark spotting over it. Their coloring is steel gray on top and whitish on their belly.

Channel catfish can grow to a huge size in Utah. The current state record is

held by Leroy Mortenson, who caught a fish in Utah Lake that weighed 32 pounds and measured 39¾ inches long.

The current catch and release record is held by a young boy named Blair Peterson. Blair caught a 34-inch fish out of Maybey Pond in Davis County

during a youth fishing club event co-sponsored by Clearfield City and the Division of Wildlife Resources.

### Where and when to fish

To be successful at any type of fishing, you need to understand the behavior of the fish you're pursuing. Channel catfish are no exception.

Channel "cats" are most active during times when there's very little light. If you fish for channel catfish just before it gets light in the morning, or just after the last light of the day, you'll be more successful than you will if you fish when it's bright and sunny. Also, fishing when it's overcast, or fishing in the portions of a lake or river that are covered by shadows, will greatly increase your chance for success.

If you're fishing in a river during the day, fish in the deep pools that are immediately downstream from riffles. The catfish begin moving out of the pools and into the lower end of the riffles at dusk and return to the deep pools during the day.

Knowing that channel catfish thrive in warm, turbid water can also help you catch them. Channel cats spawn when the water temperature exceeds 72 degrees F and thrive in waters that



Catfish live in many Utah waters and can be caught with a variety of techniques.

ANDREW CUSHING

exceed 90 degrees F. Many of the fishing ponds in communities along the Wasatch Front reach these temperatures in the summer, making the ones that have catfish in them excellent places to fish. If you're targeting channel catfish at a community water, remember to fish from dusk to dawn or to fish shady areas during the day.

### Techniques

The best technique to catch these "whiskered fish" is to use a slip sinker with a three-foot leader and a number 6 bait-holder hook. This setup allows a catfish to take your bait without feeling any resistance from the weight on the line. Channel catfish will eat virtually anything so many techniques, including using crankbaits, flies or spinners, will also work.

### Bait

The type of bait you use depends on your imagination. Channel catfish are opportunistic feeders and will eat any item that smells like food. They also use smell to locate food. Keep those two things in mind, and you'll do well.

Channel catfish often feed on dead and decaying fish and other aquatic organisms. For this reason, many anglers use "stink baits" to catch them.

A stink bait is nothing more than a homemade or commercial concoction of meat pulp and fish oils that are allowed to age until they become pungent. Once the stink bait reaches this stage, you can carefully douse it on the worm or bread dough surrounding your hook. Then cast your bait out and allow it to rest on the bottom of the water you're fishing until a catfish smells the decomposition and eats the bait.

The catfish anglers I saw in 2005 used a wide variety of baits to catch channel cats. The three most common baits were nightcrawlers, raw shrimp and hotdogs. Believe it or not, hotdogs caught as many catfish for anglers as any other bait.

### Preparing a tasty meal

Channel catfish are one of the tastiest fish you'll ever eat. However, in the West, where trout are the premier fish,

catfish are a runner-up in popularity. But their popularity is gaining and for good reason. Catfish meat is firm and flaky and it has a very mild flavor, making catfish an easy fish to prepare and a delight to eat.

The first step in turning a catfish into a delicious meal is to carefully fillet the meat from the bones. Starting just behind the hard lump behind the gill cover, run your fillet knife downward to the vertebrae. Then run it parallel along the vertebrae and the ribs, back towards the tail.

Next, flip the meat and skin over so the fish is skin down, and then run the fillet knife between the skin and the meat. Because the skin is firm, it's easy to separate it from the meat. Once you've reached this point, all you should have left is a piece of firm, skinless, boneless meat.

### A simple recipe

This simple catfish recipe was provided by Tom Pettengill, former sport fisheries coordinator for the UDWR:

### Ingredients:

- Fish fillets (4 to 6 ounces)
- 1 cup all-purpose flour
- 1 tablespoon Cajun spice
- 1 tablespoon lemon pepper
- 1 tablespoon garlic salt
- 1 to 2 cups milk
- 1 to 2 eggs

**Instructions:** Cut fillets into two- to three-inch pieces. Mix eggs and milk in a small bowl. Mix flour and spices into a quart-sized zip lock bag and shake to mix. Dip fillet pieces in egg-milk mixture and drop into bag of spiced flour. You can do three to four pieces of fish at one time. Shake bag with flour, spices and fish to coat the pieces of fish. Place on a plate so the coating has a chance to set up before cooking (five to 10 minutes). Pour  $\frac{1}{4}$  to  $\frac{1}{2}$  inch of olive oil in a skillet. Cook on medium heat. Test oil with small pieces of breaded fillets to see if it boils. If it does, it's ready to add fish to. Depending on thickness of fillets, cook the fish five to 10 minutes on each side until lightly brown, but don't over cook. 🐟



ANDREW CUSHING

Many community fishing ponds hold good populations of channel catfish.

**Crayfish are fun to catch,  
good to eat and can be found  
in several Utah reservoirs.  
Just be careful how you  
hold them — their claws can  
deliver a painful pinch.**

By **SCOTT ROOT**

*Central Region Conservation Outreach Manager*

# A cravin' for Crayfish

**T**HOUSANDS of little “lobsters” called crayfish dot the shorelines of several reservoirs in Utah. Also called crawfish or crawdad, crayfish are closely related to the lobster, and they taste a lot like them. Crayfish are also fun and easy for the whole family to catch!

## **Catching crayfish in Utah**

Crayfish are a great source of food for fish, especially bass and trout. It takes many insects to equal the weight and nutritional value a crayfish provides, and it's usually easier to catch a crayfish than a bunch of insects.

Crayfish are also a great food source for people! Utah has several waters that provide buckets-full of these little lobsters. Although crayfish are found in many of Utah's lakes, ponds and streams, most crayfish anglers like to catch them in reservoirs. Some of Utah's best “cray-fishing” reservoirs include Baker, East Canyon, Flaming Gorge, Gunlock, Huntington North, Lake Powell, Lost Creek, Newcastle, Scofield, Strawberry, Upper Enterprise, and Upper and Lower Sand Cove.

Crayfish are attracted to scent. A

simple way to catch crayfish is to tie a piece of bait, such as a chicken leg, to a string. Simply toss the chicken leg into the water, wait a few minutes and then gently retrieve the leg. Crayfish will usually hold onto the leg while you slowly bring it back to the shoreline or your boat.

Another way to catch crayfish is with a basket-type crayfish trap sold at many sporting goods stores. These traps are designed so crayfish can work their way into the baited basket, but they can't get back out. Use one of these baskets and you might find it completely full of crayfish!

To handle a crayfish, pinch it just behind the head with your thumb and forefinger (it will hurt if it pinches you with its claws, so you may want to practice with a glove until you get the hang of it).

## **Crayfish regulations**

A fishing license is required to catch crayfish (unless you're under the age of 14), and there is no limit on the number of crayfish you can keep. However, you may not transport live crayfish (or any fish, for that matter) away from the water where you caught them, so the best thing to do is to immediately kill

the crayfish after you've caught them. Crayfish can create many problems when they're introduced illegally to a fishery. They prey on young fish and eggs and they often outcompete fish (especially young fish) for habitat.

You may take crayfish by hand or with a trap, liftnet, handline, pole or seine (net) provided you don't use for bait game fish or their parts, or any substance that's unlawful for angling. Nets cannot exceed 10 feet in length or width. You may not use more than five lines, and not more than one of those lines can have hooks attached to it.

## **Preparing crayfish**

It's extremely important to cool crayfish after you've caught them. If you're only keeping the tails, it's important to rinse them with clean water. Then put the tails on ice or keep them in a cooler that's under 40 degrees F in temperature. Crayfish meat deteriorates rapidly and needs to be kept cool. If you're keeping the entire crayfish, once you're home it's a good idea to thoroughly rinse the dead crayfish since they have a rough shell with many joints, cracks and crevices that allow dirt and algae to collect.

To remove the thin, black intestine from the tail, grasp the top middle tail fin (there are five fins) and twist and pull. The vein should come out with the fin. Soak the crayfish in a strong salt solution for five minutes or more to further cleanse them. Then rinse, chill and refrigerate the crayfish in a plastic bag.

Here's a good method for peeling uncooked tails: 1. Separate the tail from the body by slightly twisting and pulling the tail section from the rest of the body. 2. Hold the tail lengthwise between your thumb and forefinger (with the tail fins at your finger tip) and squeeze. You may feel the tail crack a little. 3. Grasp the lower three tailfin pads from the side and loosen by lifting up and pulling around the meat. This piece can be easily pulled off and discarded. 4. Firmly grasp the last segment and the tailfin with the thumb and forefinger of one hand. 5. Gently pull the meat out of the shell with the other hand. The vein will pull free from the meat. To prevent discoloration, dip the peeled tails in a solution of  $\frac{1}{4}$  cup

lemon juice to 2½ cups ice water. Drain and refrigerate in sealed bags or containers until you're ready to eat them!

### Cooking crayfish

Crayfish can be prepared in most of the same ways you'd prepare a lobster. Like lobster, they turn bright red when they're cooked. Most people use their fingers to eat them because the sweet, succulent meat must be picked or sucked out of the tiny shells. Many anglers like to remove and cook the flesh in the claws too.

Crayfish can be fried, blackened or boiled in a large pot with heavy seasoning (e.g., Cayenne pepper, paprika) and with other items, such as potatoes, sausage, corn, onions and garlic bulbs. Another simple way to boil crayfish is with salt, sugar and dill. Specific preparations for crayfish in Cajun and Creole food, the best-known of which are crawfish étouffée, crawfish po' boy, crawfish pie and crawfish beignets, are also popular. As you can see, countless ways exist to cook crayfish!

Local crayfish chef Kayla Willey has graciously agreed to give out one of her much-desired crayfish recipes. She has cooked "crawfish étouffée" for participants at the annual Strawberry Wildlife Festival and at many other occasions. This delicious recipe has just a touch of spiciness, which gives it personality! (If you're allergic to shell fish, chicken can be substituted for crayfish in the following recipe:)

### Crayfish étouffée

#### Roux:

- 1/3 cup oil
- 1/2 cup flour
- 1/4 cup butter

Make the roux first. Combine the oil and flour, and cook it until it turns a medium brown. Don't let it burn black. Then add the butter to it, and allow the butter to melt in.

#### Other ingredients:

- 3 cups peeled crayfish tails (pre-cooked in Cajun spices)
- 1 small bunch green onions
- 1 small white onion chopped



Kayla Willey can transform an ordinary crayfish into a culinary work of art.

- 1/2 red bell pepper chopped
- 2 fresh tomatoes chopped
- 2 to 3 cups of water (start with 2 cups, but you may want to add more to bring the sauce to your desired consistency; a lot of the water boils off too)
- 4 stalks celery chopped
- 2 bay leaves
- 1 tsp. basil
- 4 to 5 dashes hot pepper sauce (Tobasco sauce works, or a Cajun hot sauce)
- 1 tsp. salt
- 1 tsp. black pepper
- 1/2 tsp. lemon pepper

- 1/2 tsp. Cayenne pepper
- 3 cloves garlic minced
- 2 tbsp. Etouffée spices (they come powdered)

Saute white onions in the roux. Add the green onions, peppers, garlic and tomatoes. Add spices and water. Boil for 15 to 20 minutes, until the vegetables are the consistency you like. Add celery and crayfish and boil another 10 to 15 minutes. Serve over rice.

Countless other crayfish recipes can also be found on the Internet. 🦞

**By RON STEWART**

*Northeastern Region Conservation Outreach manager*

# Red Fleet Reservoir

## Northeastern Utah's hidden fishing jewel

ONE OF UTAH'S best-kept fishing secrets is tucked away in the northeast corner of the state. Exactly how this water has remained a secret for so long is a mystery because Red Fleet Reservoir is a Utah state park. This water also offers about everything you could hope to find at a fishing water and recreation destination in Utah.

My wife and my two sons and I began our search to locate Red Fleet by driving north from Vernal on U.S.-191 toward the Uinta Mountains. This highway is also known as the Uinta-Flaming Gorge National Scenic Byway. The byway has a theme, "Wildlife Through the Ages," that we would soon experience.

Not long after leaving Vernal and the Ashley Valley, we were driving along the shore of Steinaker Reservoir. There we saw a rich variety of waterfowl and shorebirds. On the north end of the res-

ervoir we passed a byway pullout with an interpretive kiosk and a nature trail.

Steinaker is a great place to fish and enjoy wildlife. We especially enjoyed the ospreys that were nesting on a platform Nathan Barnhurst placed at the reservoir as a Boy Scout project. We learned that bald eagles are common visitors during the winter and that loons can be seen during their spring and fall migrations.

Just north of the reservoir we saw a road to the left that leads to a state park campground and boat ramp.

After leaving Steinaker we continued north, passing through sagebrush and greasewood flats. As we turned right off SR-191 and headed to Red Fleet, we could see that the park shares characteristics with both its desert and mountain origins.

The name "Red Fleet" comes from a rock formation that was created when nature carved a series of sandstone inclines that look like a fleet of red, ocean-going ships. The Glen Canyon (Navajo) sandstone cliffs rising above the reservoir remind most people of its better-known cousin: Lake Powell.

The beauty of its mountain cousin, Flaming Gorge Reservoir, is reflected in the reservoir's cold, clear, blue water, its pinyon-juniper woodlands and red rock cliffs, and the Uinta Mountains in the background.

Red Fleet offers a variety of fish for anglers, and my family and I were eager to try our luck. We placed our canoe in the water at the bottom of the boat ramp and then drove back to the parking lot where a nice, well-maintained campground is also found.

Rainbow trout are one of the mainstays at Red Fleet, so we attached lures to our lines before pushing the canoe off. Excellent opportunities to catch a limit



**Red Fleet Reservoir offers fishing, boating, camping and plenty of relaxation.**

of rainbows are available throughout the year, and the lake offers excellent bluegill and largemouth bass fishing in the summer. During the winter, the lake is open for ice fishing, and rainbows are the main fish caught in the winter.

My wife and I chose very small, brightly colored spoons while our two boys chose slightly larger lures. We chose the styles and colors we did because they've been very successful performers for trout through the years. My wife and I chose small lures because we've found that even big trout like them. They're also small enough for bluegill to take.

It was only mid-afternoon when we put our canoe on the water, so we decided to scout around a bit. Directly across from the boat ramp is a cave. Above the cave is a rock formation that slants down like a boat ramp into the water. It's not a boat ramp, however; it's a trackway of dinosaur tracks. Checking out the tracks would be our first stop.

The tracks were discovered after the reservoir filled with water, and the easiest way to reach them is by boat. If the park rangers are available and things are slow at the park, you can talk to them about giving you a tour of the tracks. You can also see the three-toed tracks on your own (they aren't difficult to find). There's even an interpretive trail that leads from a road behind the reservoir to the tracks, so you don't need a boat to reach them.

While we were looking at the tracks, we admired the spring wildflowers and what we could see of the sandstone cliffs. It wasn't long before our boys discovered a lizard, and the chase was on! Later we decided to escape the heat, so we climbed back into the canoe and paddled into the cave to enjoy a snack inside its cool shade.

As we floated inside the cave, I caught my first fish, a rainbow that was so small it reminded me of a minnow. After releasing the small fish, we paddled into the canyon where Brush Creek enters the reservoir.

One of the reasons my wife and I used the small lures was in case the bluegill were up and about. Bluegill have small mouths, but they're aggressive predators and will readily take small spoons. My sons used larger lures

because they're heavier and easier to cast. These heavier lures also sink more, which helps if the fish are down a bit deeper.

As we fished, we caught a few more rainbows while enjoying the scenery of the sandstone cliffs. It's easy to see why Red Fleet is often referred to as a "mini-Lake Powell." Along the shoreline we saw chipmunks, common mergansers, Canada geese, ravens, scrub jays, cliff swallows and an occasional spotted sandpiper. We also saw a variety of tracks that had been left behind by animals we couldn't see.

After leaving the canyon, we paddled down to the point of a small bay. There we stepped out of the boat and stretched.

It was late afternoon and the day was beginning to cool. As we walked along the beach, we saw a couple of fish jump. Out came the fishing poles again!

It didn't take us long to discover that this beach, which turned out to be our fishing "hot spot" for the day, had a couple of distinct fishing areas. In the bay, a school or two of bluegill were about 40 feet offshore. To my right, a rocky point harbored bass. And out beyond both of these areas were rainbows. My oldest son selected the point and started hooking largemouth bass on every few casts. My youngest son chose the bluegill.



RON STEWART

Earlier in the day, my sons kept a running score of the value of each lure. Their scoring system soon fell apart because it really didn't matter what we used: all of us were catching rainbows, bass and bluegill.

There must be something contagious about the laughter of small boys because within an hour two boats appeared in our small bay. Earlier we had seen other watercraft and anglers along the shore of the reservoir, but none had come close to our adventure.

The first of the boats approached slowly and dropped an anchor in the bay beyond our casting range. Soon the


anglers in the boat were catching bluegill, which seemed to be the fish they were after. The anglers in this boat were courteous to us, but the people in the second boat were not.

The second boat was one we had seen pulling a water skier earlier in the day. As the sun was getting low, it passed by our bay at high speed, sending a huge series of waves into the bay. We had to grab onto the canoe to keep it from floating away. A few minutes later it returned, still at high speed, and entered the bay. As I scrambled to secure the canoe again, the boat stopped between my two boys, easily within their casting range. It was

the only sour point of our adventure and a good reminder of how important it is to be courteous to others.

It was getting late enough that we decided to pack up the canoe and paddle to the ramp. It was a good decision because the sunset, with its reflection off the water and the sandstone cliffs in the background, was incredible.

As we drove out of Red Fleet we saw mule deer around the campground and along the road all the way back to Steinaker. It was a great ending to an incredible day filled with good company, hot fishing, beautiful scenery and excellent wildlife viewing. 🐾



**The scenery near Red Fleet Reservoir is sometimes compared with the sandstone country of southern Utah. The reservoir was actually named after these rock formations that, to some, are reminiscent of fleets of ships.**

**UDWR biologist Richard Hepworth holds two smallmouth bass taken from gillnets before being released back into Deer Creek Reservoir.**



**By SCOTT ROOT**

*Central Region Conservation Outreach Manager*

**By DON WILEY**

*Central Region Aquatics Manager*

# Deer Creek

## A piece of paradise in your backyard

**M**ANY PEOPLE CALL the Heber Valley “paradise” and for good reason. Guarded by the majestic Swiss-like Alps of Mount Timpanogos, the Heber Valley provides a rustic landscape and a charming beauty that suggests the simplicity that comes from country living. Thousands of people are attracted to the valley every year to hike, take photographs, watch wildlife, golf and relax.

Fishing is also a popular activity. Relaxing on one of the many rivers and reservoirs in the valley provides anglers with an appreciation of just how heavenly the area’s scenery and fishing really are.

Strawberry Reservoir, Jordanelle Reservoir and the Provo River are all located in Wasatch County (which includes the Heber Valley) and are three of the state’s most popular waters for fishing and water-related recreation.

Unfortunately a fourth water, Deer Creek Reservoir, doesn’t get as much attention. Many anglers drive past the reservoir on their way to the other waters without realizing they’re passing

one of the state’s best fishing waters.

Perhaps it’s the newness of Jordanelle Reservoir and its great trout, bass and perch fishing that draws people away from Deer Creek. Or maybe it’s the famous large-trout fishing at Strawberry Reservoir. The much sought-after German brown trout in the Provo River may also be a culprit. Whatever the rea-

son, anglers should think twice before passing up Deer Creek Reservoir to fish another water.

In addition to its excellent fishing, the Utah Division of State Parks and Recreation recently spent considerable time and money to turn Deer Creek Reservoir into an inviting destination. Excellent facilities have been created at Deer Creek State Park, and the boat ramp at the Island portion of the park has been lengthened and improved.

Excellent bird viewing opportunities are also available at the reservoir, and birders “flock” to it every year to see the many different birds that use the area. Although loons are uncommon to much of Utah, they can often be seen at the reservoir in the spring and early summer. Colorful warblers, orioles, buntings, towhees, jays and other birds can also be seen as they come down from the scrub oak to quench their thirst.

Imagine camping next to the reservoir and seeing the reflection of Mount Timpanogos on the water’s glassy surface while listening to the mysterious songs of the loons and Western grebes in the distance. Feeding fish make ripples on the surface of the water as they sip on insects. The tug of an 18-inch rainbow trout or watching the Heber Valley Railroad train travel on tracks that parallel the opposite shoreline are all that make you wake from your daydream.

This enjoyable setting is available to



SCOTT ROOT

**Brown trout, walleye, smallmouth bass, perch and rainbow trout, all pulled from a single gillnet, demonstrate the diversity of fish in the reservoir.**



SCOTT ROOT

**UDWR gillnet surveys indicate that 2006 could be one of the best years yet to fish at Deer Creek Reservoir.**

everyone, but far too few take the time to enjoy one of Utah's most scenic state parks even though it's only 25 miles east of Provo and within an hour's drive of many of Utah's larger cities.

In addition to its scenery, wildlife and facilities, Deer Creek Reservoir provides fantastic fishing for a variety of fish.

### **What to expect in 2006**

Deer Creek Reservoir is home to walleye, rainbow trout, brown trout, smallmouth bass, largemouth bass and yellow perch. These diverse fish provide anglers with some of the finest year-round fishing in Utah. And 2006 could be one of the best years yet to fish at the reservoir.

### **Rainbow trout**

Fishing for rainbow trout in 2006 and 2007 should be the best it's been in

the last 15 to 20 years.

Several years ago, Division of Wildlife Resources biologists and anglers became concerned about Deer Creek's rainbow trout fishery. Walleyes were taking their toll on the catchable rainbow trout that were being stocked in the reservoir. To remedy the problem, the UDWR switched from stocking eight-inch rainbow trout to stocking fish that were 10 inches long. That small size change has made a big difference in reducing the ability walleye have to prey on rainbows and has resulted in an excellent rainbow trout fishery at the reservoir.

Rainbow trout in Deer Creek Reservoir grow fast and they're in good condition. The average length of rainbow trout sampled by the UDWR in spring 2005 was 15 inches, and the trout weighed an average of about 1½ pounds. Two size classes of rainbow

trout were observed in the surveys. The larger class averaged about 18 inches long while the other class averaged about 15 inches. The largest rainbow trout caught during the monitoring was about 20 inches long, but bigger trout are swimming in the reservoir.

While rainbow trout in Deer Creek Reservoir grow well and are very fat, UDWR biologists had been concerned about the low numbers of rainbow trout that they were observing in their annual sampling and the low rate at which anglers were catching them. To remedy both of these situations, the UDWR stocked an additional 45,000 rainbow trout into the reservoir in early fall 2005 (that's 90 percent more than the annual quota). Because there's more trout in the water, anglers should catch more trout in 2006. Most of the 45,000 trout should be 15 to 16 inches long by May 2006.

Trolling for trout with pop gear and night crawlers is a popular and successful way to catch them. Anglers who like to fish for rainbow trout from the shore often find success in Wallsburg Bay and in Rainbow Bay, which is the bay northeast of Wallsburg Bay.

### Bass

Adding walleye and smallmouth bass to the fish mix in Deer Creek Reservoir added another dimension to the fishery that makes it unique. The development of this two-story fishery (cold-water and warmwater fish) continues to attract anglers.

In fall 2005, UDWR biologists sampled more bass than they've seen in more than 15 years. The length of the bass sampled ranged from four to 19 inches, which averages out to a length of 10 inches. Several size classes were observed, and fishing for bass should be great in 2006.

To find smallmouth bass, fish along rocky shorelines and near brush. The island area in the reservoir also provides good habitat for smallmouth bass.

Anglers have found success using tube jigs, rapalas and night crawlers.

### Walleye

Deer Creek also has a good walleye population. The average size of walleye sampled in gill nets is fairly constant from year to year. The fish are usually about 16 inches long and weigh about 1½ pounds. At least three size classes of walleye were observed in surveys in 2005, ranging in length from 14 to 27 inches. About 20 percent of the walleye sampled in 2005 were longer than 20 inches. You'll usually find the best walleye fishing around any structure you find in the reservoir. The upper half of the reservoir is the best place to try. When fishing for walleye, try perch-imitating crankbaits or jigs tipped with night crawlers.

### Yellow perch

At one time, the reservoir's yellow perch fishery was almost eliminated by overfishing during a time when fish limits on perch didn't exist and by the introduction of walleye. Thoughts of

recovering a yellow perch fishery were dismal until 1997 when yellow perch started showing up in significant numbers in sampling done by the UDWR.

The yellow perch population currently provides good fishing on a cycle that runs about every five years; fishing will be good for about five years and then it will be poor for a few years. The relationship between perch and walleye is the reason for the cycle. The yellow perch population produces an abundant year class for a couple of years, then the walleye population eats most of the yellow perch that are produced and the walleye population expands. This causes the perch population to decline, and then the walleye population declines too. After the declines, the cycle starts all over again.

The yellow perch population decreased in 2003 and has been slowly increasing for the past two years. In 2005, UDWR biologists sampled yellow perch ranging from two to 11 inches in length. Based on the five-year cycle, yellow perch fishing should be really good in either 2007 or 2008. 🐟

## Deer Creek Reservoir facts

**D**EER CREEK RESERVOIR is about six miles long with a maximum surface area of 2,965 acres and a mean depth of 65 feet (maximum depth of 137 feet). The reservoir offers 18 miles of shoreline. Deer Creek Reservoir stores water from the Provo River and surplus water from both the Weber and Duchesne rivers. The water is used as supplemental irrigation water and provides municipal and industrial water for the metropolitan water districts of Salt Lake, Provo, Orem, Pleasant Grove, Lindon, American Fork and Lehi.

- Acres: 3,260
- Elevation: 5,400 feet
- Park open: All year (camping May through September)
- Reservations accepted: May 15 through Sept. 15 (individual campsite reservations are accepted 18 weeks in advance of your stay; group campsite reservations are accepted 11 months in advance of your stay)
- Stay limit: 14 days
- Total camping units: 75, including 58 RV trailer sites and 14 tent sites
- Maximum RV length: 35 feet
- Camping fee: \$15 to \$21
- Group areas (camping \$75/\$3)
- Day-use fee: \$9
- Picnicking
- Drinking water
- Modern rest rooms
- Vault toilets
- Showers
- Waste disposal
- Boating
- Fishing
- Swimming
- Golfing nearby
- Watchable wildlife
- Winter activities
- Concession service
- Deer Creek State Park: (435) 654-0171
- Telephone reservations:  
Salt Lake area: (801) 322-3770  
Toll free: 1 (800) 322-3770
- Online reservations:  
[stateparks.utah.gov/visiting/reservations.htm](http://stateparks.utah.gov/visiting/reservations.htm)

Taken from Utah State Parks and Recreation Web site at [www.stateparks.utah.gov](http://www.stateparks.utah.gov)

BY THE UDWR STAFF

## A few favorite fish recipes from the UDWR

# Recipes

**F**ISH are not only healthy to eat, they taste great when they're cooked right. In this issue of the Wildlife Review, four Division of Wildlife Resources employees tell you how to do just that.

Try these four different and tasty recipes this summer; they'll help make the fish fries you have with your family and friends on those warm summer evenings the best yet!

### Microwave fish recipe

(Like Mom used to do!)

**Ryan Mosley**

*Great Salt Lake Aquatic Biologist*

- 4 to 6 fillets (walleye, striped bass, wipers work great!)
- half of an onion, sliced
- 4 strips of bacon
- Butter
- Garlic salt and lemon pepper

Coat a baking dish (large enough to hold fillets, small enough to fit in a

microwave) with butter. Lay fillets in the baking dish and wipe down with butter. Season fillets with garlic salt and lemon pepper. Layer strips of bacon and onion over the fillets. Cook for 2 to 3 minutes and check; thicker fillets may require more time. As always, the fish is done when it's flaking. Dinner is served!

### Grilled salmon or trout (including small lake trout)

**Lowell Marthe**

*Flaming Gorge Project*

This is a very simple method to prepare trout or salmon on the grill that is both tasty and quick.

Fillet fresh salmon or trout, and leave the skin on. The flavor of the fish will be greatly reduced if frozen fish are used. You can remove bones within the flesh by running your fillet knife down either side of the row of bones, deep enough to reach the skin. After doing this, just peel the small strip of meat and bone out of the fillet. If you have children this is a good step to take so they won't complain about the bones. Wash

the fillets well to remove the blood and slime.

Next, dry each fillet with paper towels and coat both sides of the fillet with a liberal amount of olive oil (vegetable oil will work, but the flavor won't be as good). Heat your grill to a medium temperature. Once it's hot, lay the fillets on the grill skin side down. The olive oil should keep the fillet from sticking but if sticking is a problem, coat the grill with a light coating of oil or spray-type oil.

Next, sprinkle lemon pepper and garlic salt on the flesh side of the fillet (this can be done before or after setting the fillet on the grill). The amount of spice depends on your preference, but try to cover the fillet with a light sprinkling. You can also add butter or margarine in small chunks at this time, or melt it first to get a more even covering; a teaspoon or so per fillet works well.

Let the fillet cook for about 4 to 5 minutes skin down, and then flip it over using a metal spatula and grill it for another 1 to 2 minutes, flesh side down. At this time you can remove the skin or leave it on, whichever you prefer. The skin will peel off easily if the fillet is cooked through. Also the fillet will flake easily if it's done. Do not overcook the fish: overcooking will cause the fish to lose its flavor and it will become rubbery in texture.

When the fish is done, remove it from the grill and place it on a heated plate or in a warm oven until you are ready to serve it. The fish should be served very warm or hot to achieve the best flavor: right off the grill is best. Rice and fresh cooked or grilled vegetables are a great compliment to fillets prepared this way.

The overall time to cook fish this way is 10 minutes or less. After you've done it once or twice, cooking fish this way will become second nature.

### Kamas hatchery parmesan fillets

**Ted Hallows**

*Kamas State Fish Hatchery Supervisor*

This recipe is best for fish fillets from perch, walleye, crappie, bluegill and especially any type of bass.



**The rewards of fishing extend beyond the water's edge. Fish not only make a good-tasting meal, they're healthy to eat.**

- Fish fillets that are equal in thickness and size
- 1 cup bread crumbs (comes in a can or carton at the store)
- 1/2 cup finely grated Parmesan cheese
- 1 tsp. lemon pepper
- 1 tsp. dill weed
- 1 cube of butter

Melt butter in a small bowl (this can be done in a microwave). Combine the remaining ingredients in a pie tin or a large baggie. Put a teaspoon of melted butter in a large frying pan or Dutch oven, and turn your stove to medium heat. Roll the fish fillets in the bowl of melted butter, and then roll them in the remaining ingredients in the pie tin or shake the fillets in the large baggie until they're well coated with dry batter.

Fry them in the frying pan until they're golden brown, turning the fish over once. If more butter is needed for frying, use more of the remaining melted butter in the frying pan. The fillets can be served with your own tarter sauce or plain. This is an excellent recipe for fillet

type fish. The recipe can be reduced or enlarged; just make sure the ratio of the ingredients stays the same.

### **Best fish jerky in the world**

**Gary L. Ogborn**  
*Habitat Biologist*

Three pounds fresh fish fillets (any trout species, salmon, grayling, mountain whitefish). This recipe is not suitable for mild-flavored fish, such as bluegill, perch or walleye.

#### **Marinate:**

- 3/4 cup soy sauce (La Choy)
- 1/4 cup Worcestershire sauce (Lea & Perrins)
- 1/4 cup brown sugar
- 1 Tbsp lemon juice
- 1 tsp onion powder
- 1/8 tsp garlic powder
- Black pepper to taste

1. Combine all marinate ingredients in a large glass bowl (except black pep-

per) and set aside.

2. Prepare fillets by removing lateral line dark meat and bone. Cut fillets to 3/8 inch thick.

3. Place fillets in marinate and stir until thoroughly covered. Cover with plastic wrap and refrigerate for 6 to 12 hours. Do not cover with aluminum foil. An alternative is to marinate in a good Ziploc bag.

4. Place fillets on dehydrator trays. Grind black pepper over the meat to taste. Follow the directions of your dehydrator for jerky. In general, meat should be dried at 145 degrees F until dry.

5. Let cool uncovered. Store appropriately—but I have never had to store it. It gets eaten too fast!

Use the sauces you like. La Choy and Lea & Perrins are my favorite. I have used this recipe with beef, antelope, deer, elk, dove, teal, mallard and goose. If you are trying to figure out an enjoyable way to eat waterfowl, give this a try! 🐾

BY JILL WEST  
*Coordinator of Volunteers*

# Helping children

NATIVE AMERICAN and Mormon pioneer children had to know how to catch a fish, hit an animal with an arrow and identify animal tracks in order to survive.

Today, young Utahns don't have to do those things to survive. And that's one of the reasons fewer of them are spending time in the outdoors learning about wildlife.

Volunteers for the Division of Wildlife Resources are working to change that by educating young people about Utah's wildlife and its history—all at the same time.

**Volunteers pass along their love of fishing to others.**

Combining wildlife with history might seem strange at first, but not when you consider the important role wildlife played in Utah's settlement and its cultural development. Native Americans hunted and fished long before the Mormon pioneers arrived in the state.

are using the intimate ties between Utah's wildlife and its history to provide new opportunities for kids to learn about wildlife.

## **Wildlife and history: coming to a classroom near you**

In the first program, 22 students from Salt Lake Community College and LDS Business College are putting their heads together to create educational activities that focus on Utah's history and wildlife. These students are creating a new curriculum of educational programs aimed at 4th and 7th grade students.

After the college students finish the curriculum, volunteers will be trained to take these "wildlife programs with an historical twist" into 4th and 7th grade classrooms along the Wasatch Front. This new curriculum is known as the Utah Wildlife Heritage program.

"Utah's Wildlife Heritage program will bring together the UDWR's education and volunteer programs," says Diana Vos, Project WILD education coordinator for the UDWR. "We'd like to get our programs into every 4th and 7th grade classroom along the Wasatch Front, but it would be hard for UDWR personnel to reach all of those kids. That's where volunteers come into the picture."

Training volunteers to deliver the programs creates a unique volunteer

After their crops failed, some pioneers turned to Utah Lake and its fish for food. In 1853, Utah's territorial government passed the territory's first provision to regulate fishing, and wildlife management began in what is now the state of Utah.

Two UDWR volunteer programs



**Almost every child seems to have a natural fascination with fish and fishing.**





**Youth fairs give volunteers a chance to pass along their skills and appreciation of nature to another generation.**

opportunity for people and allows the UDWR to take the program into many more classrooms than it could on its own.

With the help of Vos and Jill West, the UDWR's volunteer coordinator, the college students are creating educational activities that will form a "learning module," or package of activities that can be covered before and after a volunteer visits the classroom. The learning modules will cover topics ranging from the history of wildlife management in Utah to the story behind the state bird (California gull), state fish (Bonneville cutthroat trout) and state animal (Rocky Mountain elk).

Questions like "who named Bear Lake and Eagle Mountain, and why?" also will be covered. One module will focus on the towns and geographical features that are wildlife namesakes in Utah, and the other module will explore

the story of the state's early pioneers and Utah Lake.

As early as this summer, volunteers who are interested in delivering these classroom programs will begin training so they can visit classrooms this

“ EVERY CHILD  
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ITS HISTORY. ”

fall. If you're interested in volunteering, or you're a teacher who would like to know more about the program's content or how to schedule a presentation, please send an e-mail to Jill West at [JillWest@utah.gov](mailto:JillWest@utah.gov).

### **Wildlife history expo**

From March 16–19, 2006, more than 200 volunteers came to the UDWR's Youth Wildlife Fair at the International Sportsmens Exposition (ISE) in Sandy to join with kids in "Celebrating Utah's Wildlife History."

The youth fair provided kids with several fun ways to learn about Utah's wildlife. The fair included booths on fly-tying and wildlife track identification, an archery shooting range, an "ice fishing" pond and educational displays about important animals in Utah's history.

"This year, every booth emphasized hands-on learning," says Rosemarie Carter, the UDWR's information center supervisor and the person who

organized this year's youth fair.

"The event was staffed almost entirely by volunteers," Carter says. "Everyone who worked at one of the booths was part of our mission to teach kids to 'Learn and Love Hunting, Fish-

ing and Watching Wildlife,' which was one of the major themes of our youth fair this year."

The activities volunteers and UDWR staff offered at the fair were fun, interactive and educational.

At the "ice fishing" pond, volunteers were on hand to bait hooks, help kids remove fish from their line and discuss fishing ethics. At the fly-tying booth, local fishing experts and UDWR staff not only taught kids how to tie flies, they also explained the insect biology that causes a fish to bite a fly. At the fishing simulator, volunteers coached kids through "landing a big one" and whetted their appetite for a lifetime of fishing.

At the archery booth, kids waited in line to test their skills with a bow and arrow. As they made their way to the booth, the kids weaved between two tables that included illustrations and photos of hunters pursuing game with techniques ranging from primitive to modern. Also on display were old proclamations and hunting regulations that demonstrated the long history of wildlife

management in Utah.

When the kids reached the front of the line, they got to shoot a bow and arrow. Volunteers, many of whom were volunteer bow hunter education instructors for the UDWR, were there to provide them with helpful hints.

Volunteers also taught kids how to identify wildlife from their tracks, furs, bones and antlers. Bird songs and silhouettes challenged the children to sharpen their identification skills. Kids who explored exhibits displaying information about nine animals in Utah, including wild turkey, cougar, beaver, great-horned owl, elk and rattlesnake, were rewarded with a chance to make a primitive wildlife necklace.

Every child who explored the Youth Wildlife Fair learned to "Do Something Wild" and see the connection between Utah's wildlife and its history. Thank you to all of the volunteers who made the 2006 Youth Wildlife Fair possible!

#### Volunteer reminders

- Looking for a volunteer project?

Check out the Wildlife Conservation Projects Web page (for Dedicated Hunters and anyone who would like to help) at [wildlife.utah.gov/dh/projects.php](http://wildlife.utah.gov/dh/projects.php).

- If you're a member of the Dedicated Hunter program and would like to propose an independent project for dedicated hunter service hours, you must receive pre-approval from your UDWR regional volunteer coordinator. A list of regional volunteer coordinators is available at [wildlife.utah.gov/dh/contact.php](http://wildlife.utah.gov/dh/contact.php)

- If 2006 is the first year of your three-year enrollment in the Dedicated Hunter program, you must complete eight service hours to receive your deer hunting permit for this fall. In your second year in the program, you must complete 16 additional hours (24 total) and attend a RAC meeting before you can receive your deer tag.

If you complete your requirements before June 1, your permit will be mailed to you. If you complete your requirements after June 1, you may need to visit a UDWR office to pick up your tag. 🐾

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Utah Lake's  
endangered fish  
and you. What's  
the connection?

# June sucker

BY DIANA VOS  
*Project WILD Coordinator*

**A** **LOOK BACK in time:**  
The story of Utah Lake and its June suckers begins about 15,000 years ago.

That's when Lake Bonneville, which covered nearly half of what is now the state of Utah, began to drain and dry up.

When the lake disappeared about 10,000 years ago, it left behind several large lakes. One of these lakes became known as Utah Lake, the largest freshwater lake west of the Mississippi River.

One of the fish that swam in Lake Bonneville was the June sucker. As the lake retreated, the June sucker and 12 other fish species, including the Bonneville cutthroat trout and the Utah sucker, became isolated within Utah Lake. These native fish thrived in their new environment, and millions of June suckers filled the shallow lake.

The situation is much different today, however. Fewer than 1,000 adult June suckers live in Utah Lake, and the fish is now federally listed as an

endangered species.

## What changed 150 years ago?

This is where the ancestors of many of us come into the story. For the state's early residents—Native Americans, Spanish explorers in the 1700s, fur trappers and traders in the early 1800s,

the Mormon pioneers who arrived in 1847 and the stream of settlers who followed—Utah Lake was a treasured resource that provided needed water and food. Its fish played a significant role in the area's settlement and literally fostered the growth of civilization in Utah.

In 1848, an early frost killed most of the Mormon pioneer's crops. Swarms of grasshoppers destroyed what was left. The residents in the valley were faced with starvation. To find food, the pioneers organized fishing companies and turned to Utah Lake.

Using large nets (seines) made of cotton, flax or yarn, the pioneers caught thousands of pounds of cutthroat trout, June suckers, Utah suckers and other fish. Driven by hunger, more people fished even more frequently over time. Records from 1855 hunger relief efforts show that 2,301 pounds of fish were dispensed through Salt Lake City's public works department. During the summer of 1856, fishing companies organized by Mormon wards caught tons of fish, including one ward that reported catching about eight tons.

In those early days, the number of fish in Utah Lake seemed infinite. The



**Invasive plant species are causing a change in Utah Lake's habitat.**



**Found only in Utah Lake and once numbering in the millions, the June sucker is now threatened with extinction.**

abundance of fish is reflected in an 1854 recollection of George Washington Bean, one of Provo's first settlers, "So great was the number of suckers and mullets passing continuously upstream that often the river would be full from bank to bank, as thick as they could swim for hours and sometimes days together."

Because the number of fish in the lake seemed to be infinite, little thought was given to their long-term survival. People seined night and day and even placed stationary gill nets across the mouth of the Provo River where the fish were attempting to spawn. Utah Lake's fish became a valuable commodity, and laws that regulated fishing methods and the number of fish that could be taken from the lake were often disregarded.

A variety of other events also threatened the health of Utah Lake's fish. During the 1850s, numerous canals and diversion dams were built for irrigation. These dams presented barriers that did not allow the fish to move up the rivers and streams to spawn. Unscreened ditches also carried thousands of adult and newly hatched fish onto farmers' fields, instead of back to the lake. Rivers

and streams that led to and from the lake were straightened, channeled and dredged to divert water, expedite the delivery of water and provide flood control. These changes caused water levels to fluctuate and damaged habitat.

Fish populations also suffered greatly in the 1880s when a portion of the Provo River was de-watered for irrigation, killing close to one million spawning suckers. In the 1880s, sugar beet processing waste and sawdust from sawmills was also dumped into streams that feed the lake. Sewage dumping followed in the 1890s.

All of these factors led to a serious decline in Utah Lake's native fish populations. But instead of instituting regulations to protect the native fish, non-native fish were introduced into Utah Lake. It was hoped that these non-native fish would allow the lake to continue to provide a food source and a commercial fishery.

#### **Carp and the June sucker:**

The decision to introduce non-native fish, especially carp, resulted in a series of events that changed Utah Lake

forever.

Introduced into Utah Lake in 1881, carp now comprise more than 90 percent of the fish biomass in the lake. Carp are a hardy fish that are very popular in other parts of the world, but their aggressive foraging habits have destroyed Utah Lake's aquatic vegetation. The loss of vegetation makes it easier for waves to stir up sediments, which causes the water in the lake to be more turbid, or muddy, in appearance. High levels of nutrients from runoff and waste water treatment plants also fuel algae growth. This algae growth can deplete oxygen levels and kill fish.

The lack of aquatic vegetation leaves young June suckers without cover in which to hide. This lack of cover makes them vulnerable to predation by white bass and walleye, two of the more than 20 non-native fish species that have been introduced to the lake.

#### **What's special about June suckers?**

Of the 13 native fish that once lived in Utah Lake, the June sucker is one of only two fish that are still found there.

The June sucker is a member of the



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lakesucker family, Castostomidae. Their peak spawning time occurs during the month of June, and that's how the June sucker got its name. A large steel-gray fish with a white belly, June suckers grow to 17 to 24 inches long and weigh about five pounds. Their head is wide and rounded, with a distinct hump on their snout.

Pelagic planktivores, June suckers feed on single-celled zooplankton in the middle water column. They swim in groups and feed by opening their mouths, filtering out plankton with special structures called gill rakers.

June suckers are endemic to Utah Lake, which means they're found naturally only in Utah Lake and nowhere else in the world. A few refuge populations have been established elsewhere

as part of a recovery program that was developed after the U.S. Fish and Wildlife Service listed the species as endangered on April 30, 1986.

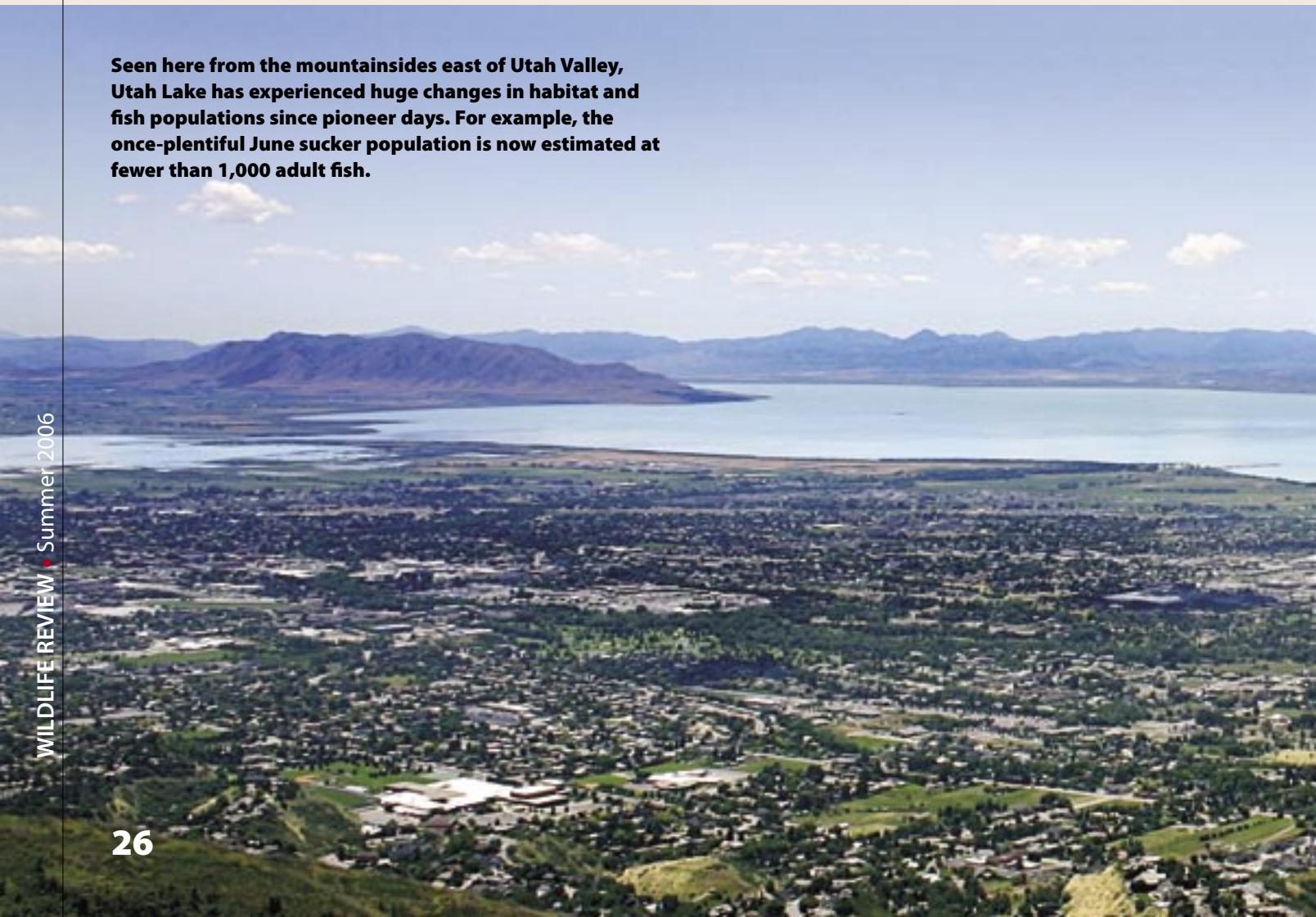
Historically, June suckers were very abundant in Utah Lake. David S. Jordan, visiting the lake in 1889, reported millions of suckers in the lake and proclaimed Utah Lake, "...the greatest sucker pond in the universe." Commercial anglers reported large annual catches of suckers through the early 1900s. Between 1901 and 1905, an average of about 178 tons of suckers were harvested each year. In the early 1950s, the catch of suckers was still relatively high, with reports of as many as 1,250 suckers caught in a single day of commercial seining.

By the late 1970s, however, June

sucker numbers had plummeted. The decline corresponds closely with the introduction of white bass and walleye to the lake in the mid-1950s. When they were listed as endangered in 1986, the wild June sucker population was thought to be less than 1,000 fish. A 1998 report indicated the wild adult spawning population was closer to 300 individuals.

The life cycle of the June sucker begins in the lower Provo River. Each spring, between April and June, adult June suckers enter the river from Utah Lake to spawn. In most years, the area where the fish can spawn is limited to the lower three miles of the river because an irrigation diversion doesn't allow the fish to pass farther upstream. In very wet years, they can migrate far-

**Seen here from the mountainsides east of Utah Valley, Utah Lake has experienced huge changes in habitat and fish populations since pioneer days. For example, the once-plentiful June sucker population is now estimated at fewer than 1,000 adult fish.**





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ther and can access an additional 1.9 miles of spawning habitat before they reach another irrigation diversion that's impossible for them to pass.

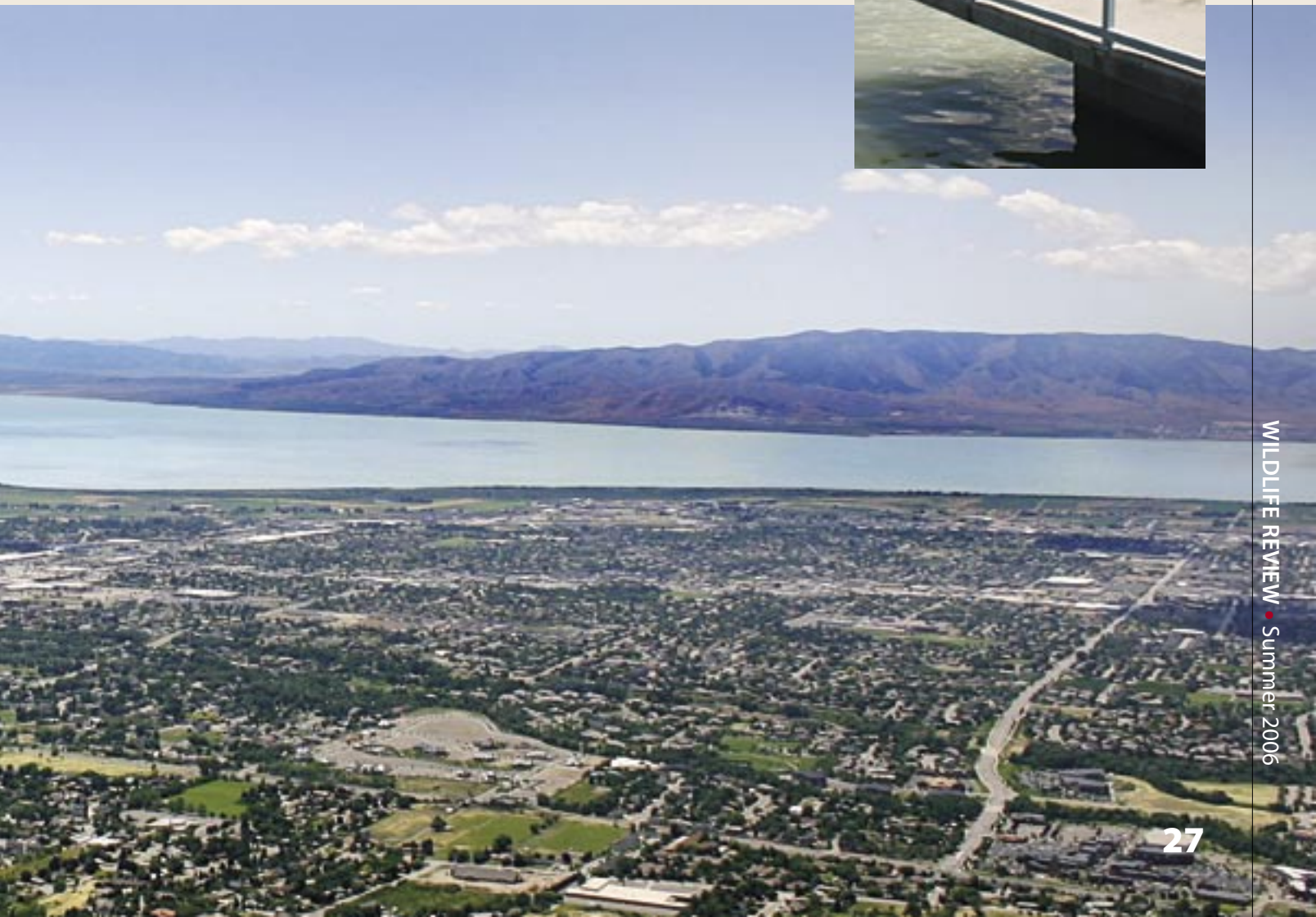
Soon after spawning, the adult suckers return to Utah Lake.

Depending on the temperature of the water, June sucker eggs hatch in four to 10 days. After they hatch, larvae emerge from the gravel bed where the eggs were laid and begin drifting downstream. Unfortunately, little is known about the early years of a June sucker's life because researchers haven't been able to capture any. It's believed the drifting larvae are either eaten by non-native fish in the Provo River, or they die because the altered habitat in the lake does not provide the food or temperatures the fish need to survive.

June suckers raised by the Division of Wildlife Resources in a hatchery are placed into Utah Lake when they're about 8 inches long, which is large enough to avoid predation. These fish have survived and have matured to the point that they've been able to spawn in the wild themselves. The ability of hatchery fish to survive, grow and reach sexual maturity shows that the bottleneck that's limiting the natural recruitment of June suckers is in the early stages of a fish's life.

June suckers reach reproductive maturity at age five or six and live to be about 40 years old.

To date, more than 8,500 juvenile June suckers have been released into Utah Lake. The total number that have survived to adulthood is not known,



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however. Total recovery of the fish will only be achieved after they're able to complete their entire life cycle in their native habitat.

### Utah Lake and the June sucker:

Despite the significant role June suckers have played in Utah's history, a recent survey found that more than 83 percent of Utahns have never heard of them. And many of the people who have heard of the June sucker see the federally protected fish as a nuisance.

What many people don't realize is that recreating a healthy habitat for June suckers will benefit the entire Utah Lake ecosystem, the people who live around the lake and the area's economy. June suckers are considered an indicator species—a species whose health reflects the health of the ecosystem of which it is a part.

In April 2002, the June Sucker Recovery Implementation Program (JSRIP) was formed. The JSRIP has two intertwined goals: recover the June sucker so it no longer requires protection under the Endangered Species Act while allowing people to continue to develop and use water resources along the Wasatch Front.

The JSRIP is a broad coalition of federal, state and local groups, including the U.S. Fish and Wildlife Service, the Utah Department of Natural Resources, water resource agencies, and environmental and outdoor groups.

To help people understand more about June suckers and Utah Lake, the JSRIP has produced a book titled *Utah Lake: Legacy* that chronicles the history of the June sucker and its long-neglected home. An exceptionally well-done documentary based on the book aired on KBYU Channel 11 in spring 2006. A DVD of the program is available by request (see resources below).

Changing public attitudes about Utah Lake is an important step to cleaning up the lake. Other steps include ensuring good water quality by limiting the amount of pollutants that enter the lake; reducing the lake's carp population;



**Human use of Utah Lake has often been at odds with the June sucker .**

reestablishing historic river and stream flows; and restoring spawning and nursery habitat.

Cleaning up Utah Lake and recovering the June sucker is a challenging, long-term project, and much of its success will depend on public support. This restored lake will be a jewel that future generations can enjoy, just like our ancestors did.

### Resources:

- *Utah Lake: Legacy* by D. Robert Carter, Vanguard Media Group, 2003. (Check

your local or school library, or order for \$15)

- *Free Utah Lake: Legacy* DVD and Educator Study Guide. Request by e-mailing [BrendaLandureth@utah.gov](mailto:BrendaLandureth@utah.gov).
- June Sucker Recovery Implementation Program Web site: [www.JuneSuckerRecovery.org](http://www.JuneSuckerRecovery.org)
- June Sucker Recovery Implementation Program—Program Director's Office. (801) 538-5273.



**More information:** Getting WILD! Utah's WILD Notebook is produced by Utah's Project WILD program. WILD workshops, offered by the Utah Division of Wildlife Resources, provide teachers and other educators with opportunities for professional development and a wealth of wildlife education activities and materials for helping students learn about wildlife and its conservation. For a current listing of Project WILD educator workshops, visit the Project WILD Web site at [www.wildlife.utah.gov/projectwild](http://www.wildlife.utah.gov/projectwild) or send an e-mail to [DianaVos@utah.gov](mailto:DianaVos@utah.gov).

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Poaching hotline: 1 (800) 662-DEER

Web site address: [wildlife.utah.gov](http://wildlife.utah.gov)





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